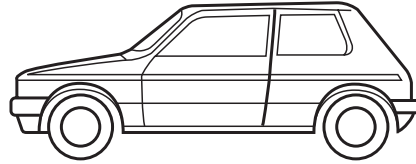


- 1 a** Draw an arrow on the diagram to show the force of friction on the car.
Label it *friction*.

- b** Draw an arrow to show the weight of the car.
Label it *weight*.



- c** Draw an arrow to show the driving force of the car.
Label it *driving force*.

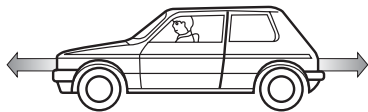
- d** Draw an upwards arrow equal and opposite to the weight.
Label it *reaction force*.

- e** What would happen if the reaction force was less than the weight?

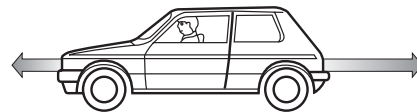
.....

- f** Is it possible for the reaction force to be more than the weight?

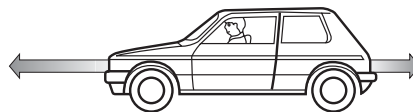
- 2** Draw lines to match the descriptions to the diagrams.



car slowing
down



car going
faster



car travelling
at steady speed

- 3** Write *true* or *false* for each statement about mass, weight and gravity.

- a** Mass is a measure of how much stuff something is made of.

.....

- b** Gravity is a measure of how much something weighs.

.....

- c** Gravity and mass are forces, weight is not.

- d** The weight of something on Earth (in N) = mass (in kg) $\times 10$.

.....

4 Complete the sentences by choosing from this list.

50 N

500 N

5000 N

50 kg

500 kg

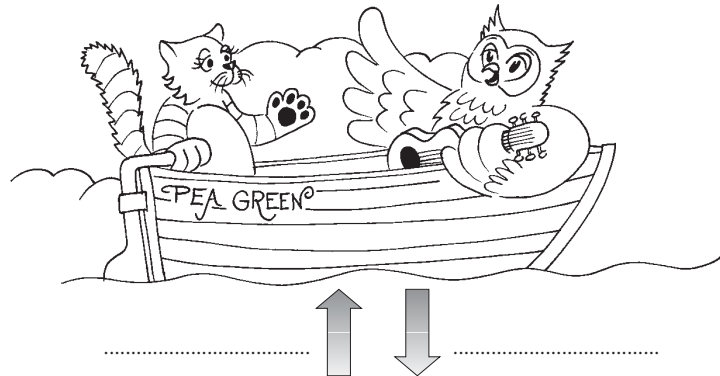
5000 kg

- a Mark has a mass of 50 kg. His weight is
- b His motorbike weighs 5000 N. It has a mass of
- c His helmet has a mass of 5 kg. It weighs

5 Write *balanced* or *unbalanced* to describe the forces in each of these situations.

- a A sprinter as she leaves the starting block
- b A lorry cruising along the motorway at 60 mph
- c A car stopping at a traffic light
- d A duck floating on a pond

- 6 a Label the force arrows on the owl and the pussy cat's boat with the names of the forces.



- b If the owl flew away, how would the forces on the boat change?

.....

- c Would the boat be higher or lower in the water without the owl?

.....

- d If the boat started to leak, how would the forces change?

.....

- e What would happen when the boat was filled with water?

.....

7 Look at this forcemeter. It measures the weight of different masses.

a What is the weight of the bag hanging on the forcemeter?

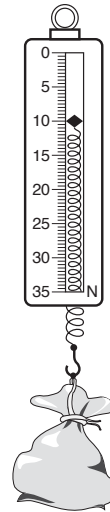
..... N

b What is the mass of the bag hanging on the forcemeter?

..... kg

c What mass would the bag be if the forcemeter read 25 N?

.....



8 Fill in the answers to find out the name of the car that went faster than the speed of sound.

1 The unit of force

2 What happens to an elastic material when a weight is hung on to it

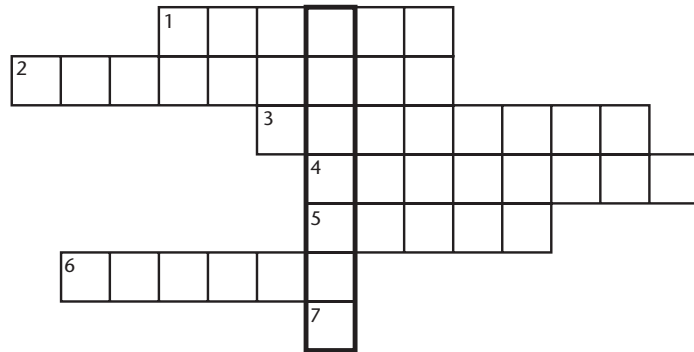
3 A force that slows things down

4 A force that makes things float

5 How fast an object moves

6 The force of gravity on your mass

7 How many hours it takes to drive 100 miles at 50 mph



The name of the car is

.....

9 Circle the things where very little or no friction is wanted.
Underline the things where high friction is needed.

car brake pads

ice skates

inside of a frying pan

match and matchbox

car tyres

ski slope

playground slide

inside an engine

football boots